

SYSTEM AND METHOD FOR PREFERENTIALLY CONTROLLING GRATING
LOBES OF DIRECT RADIATING ARRAYS

ABSTRACT OF THE DISCLOSURE

5 A DRA with preferentially controlled grating lobes is described. The DRA
comprises a plurality of elements, collectively defining a main lobe nearest the DRA
boresight and a set of grating lobes near the main lobe, wherein each of the grating lobes in
the set of grating lobes is angularly displaced from the main lobe by a grating lobe angle that
varies asymmetrically about that main lobe. In one embodiment, the plurality of elements
10 comprises a first row of elements extending in a first direction that is tilted relative to the
Northerly direction by an angle ψ , and a second row of elements, parallel to the first row of
elements, the second row of elements offset from the first row of elements in the first
direction by a stagger distance S.